

ART 34 AMDL

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CLAIMS:

(substitute sheets)

1. A peptide referred to as cadherin-derived growth factor (CDGF), characterized by being a peptide cleaved off as a pro sequence during the processing of pro-cadherin into cadherin, or a fragment thereof, and that said peptide has cell-proliferative, cell-protective and/or cell-differentiating properties.
2. The CDGF according to claim 1, characterized in that said CDGF has a cell-proliferative effect on primary osteoblasts from rat calvarias.
3. The CDGF according to claim 1 ~~and/or 2~~, characterized in that said CDGF has a cell-protective and/or cell-differentiating effect on primary nerve cell cultures from spinal ganglia of chicken embryos.
4. A CDGF having the sequence

Cadherin-1 human (28-154):

CHPGFDAESYTFTVPRRHLEGRVLGRVNFCTGRQRTAYFSLDTRFKVGT
DGVITVKRPLRFHNPQIHFLVYAWDSTYRKFKSTKVTLNGHHHRPPPHQAS
VSGIQAELLTFPNSSPGLRRQKR

Cadherin-2 human (24-159):

EASGEIALCKTGFPEDVYSAVLSKDVHEGQPLLNVFSNCNGKRKVQYESS
EPADFKVDEDGMVYAVRSFPLSSEHAKFLIYAQDKETQEKWQKLSLKPTL
TEESVKESAEEVEEIVFPRQFSKHSGLHQRQKR

Cadherin-3 human (27-107):

CRAVFREAQVTLTLEAGGAEQEPGQALGKVFMGQEPALFSTDNDFFTNRNG
ETVQERRSLKERNPLKIFPSKRILRRHKR

Cadherin-4 human (21-169):

HNEDLTTRETCKAGFSEDDYTALISQNIKEGKLLQVKSSCVGKGTQYE
TNSMDFKQADGTVFATRELQVPSEQVAFTVTAWDSQTAEKWDAVLVAQ
TSSPHSGHKPQKGKKVVALDPSPPPKDTLLPWPQHQNANGLRRRKR

Cadherin-5 human (26-47):

AGANPAQRDTHSLLPTHRRQKR

Cadherin-6 human (19-53):

TLSTPLSKRTSGFPAKKRALELSGNSKNELNRKR

Cadherin-6 human (19-51):

TLSTPLSKRTSGFPAKKRALELSGNSKNELNRS

Cadherin-8 human:

MLLDLWTPLIILWITLPPCIYMAPMNQSQVLMSGSPLELNSLGEEQRILNR
SKR

Cadherin-B human (Cadherin-11) Precursor (23-53):

FAPERRGHLRPSFHGHHEKGKEGQVLQRKR

ERRGHLRPSFHGHHEKGKEGQVLQRS (OB-CDGF)

Cadherin-C human (Cadherin-12) - Brain-Cadherin Precursor (24-54):

QPQPQQTLATEPRENVIHLPGQRSHFQRVKR

Cadherin-C human (Cadherin-12) - Brain-Cadherin Precursor (24-52):

QPQPQQTLATEPRENVIHLPGQRSHFQRV

Cadherin-D human (Cadherin 13) (23-138):

EDLDCTPGFQQKVFHINQPAEFIEDQSILNLTFS DCKGNDKLRYEVSSPYF
KVNSDGGLVALRNITAVGKTLFVHARTPHAEDMAELVIVGGKDISLQDIF
KFARTSPVPRQKRPSVLLLSLFLACL

or

Cadherin-F human (Cadherin 14) (22-60):

VPGWRRPTTLYPWRRAPALSRVRRRAWVIPPISVSENHKR

5. Nucleic acids coding for CDGF according to ^{claim 1} ~~any of claims 1 to 4~~.
6. A nucleic acid, characterized by being complementary to the nucleic acid according to claim 5.
7. Vectors containing nucleic acids according to ^{claim 5} ~~at least one of claims 5 to 6~~.

8. Antibodies, characterized by being directed against CDGF according to ~~any of claims 1 to 4~~.
9. A medicament containing CDGF according to ^{claim 1} ~~any of claims 1 to 4~~, ~~nucleic acids according to at least one of claims 5 to 6 and/or~~ antibodies according to ~~claim 8~~ together with usual auxiliary agents.
10. A diagnostic agent containing CDGF according to ^{claim 1} ~~any of claims 1 to 4~~, ~~nucleic acids according to at least one of claims 5 to 6 and/or~~ antibodies according to ~~claim 8~~ together with usual auxiliary agents.
11. The medicament according to claim 9 in suitable galenic formulations for oral, intravenous, intramuscular, intracutaneous, intrathecal administrations, and as an aerosol for transpulmonary administration.
12. Use of the medicaments according to claim 9 ~~or 11~~ for the treatment and prophylaxis of degenerative and metabolic diseases of the bones, such as osteoporosis, osteomalacia and osteopenia, of the pancreas, such as diabetes mellitus, of the muscles, such as muscular dystrophies, of the vessels, of the central and peripheral nervous systems, such as peripheral and central neuropathies, of the lungs, such as bronchial asthma, of the stomach, such as ulcer, and for the therapy and prophylaxis of inflammatory processes, disturbed inflammatory reactions, tumor diseases, and for wound and bone healing.
13. Use of the diagnostic agent according to claim 10 for checking CDGF levels in tissues, in secretions and/or in body fluids, such as plasma, urine and cerebrospinal fluid, as a marker for functional disorders in bones, muscles, vessels, the nervous system, lymph organs, the gas-

trointestinal tract, the immune system, and of diabetes and inflammatory and neoplastic processes, and as a tumor marker.

14. A process for the preparation of CDGF according to ^{claim 1} ~~at least one of~~
~~claims 1 to 4~~

- from hemofiltrate using cation-exchange extraction followed by elution of the adsorbed substances, renewed cation-exchange chromatography of the extract containing the peptides, and multistage reversed-phase chromatography; or
- by solid-phase synthesis in terms of Merrifield synthesis, or liquid-phase synthesis according to methods involving protected amino acids, per se known to those skilled in the art, followed by purification; or
- by methods of heterologous expression, per se known to those skilled in the art, using common biotechnological vectors.

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